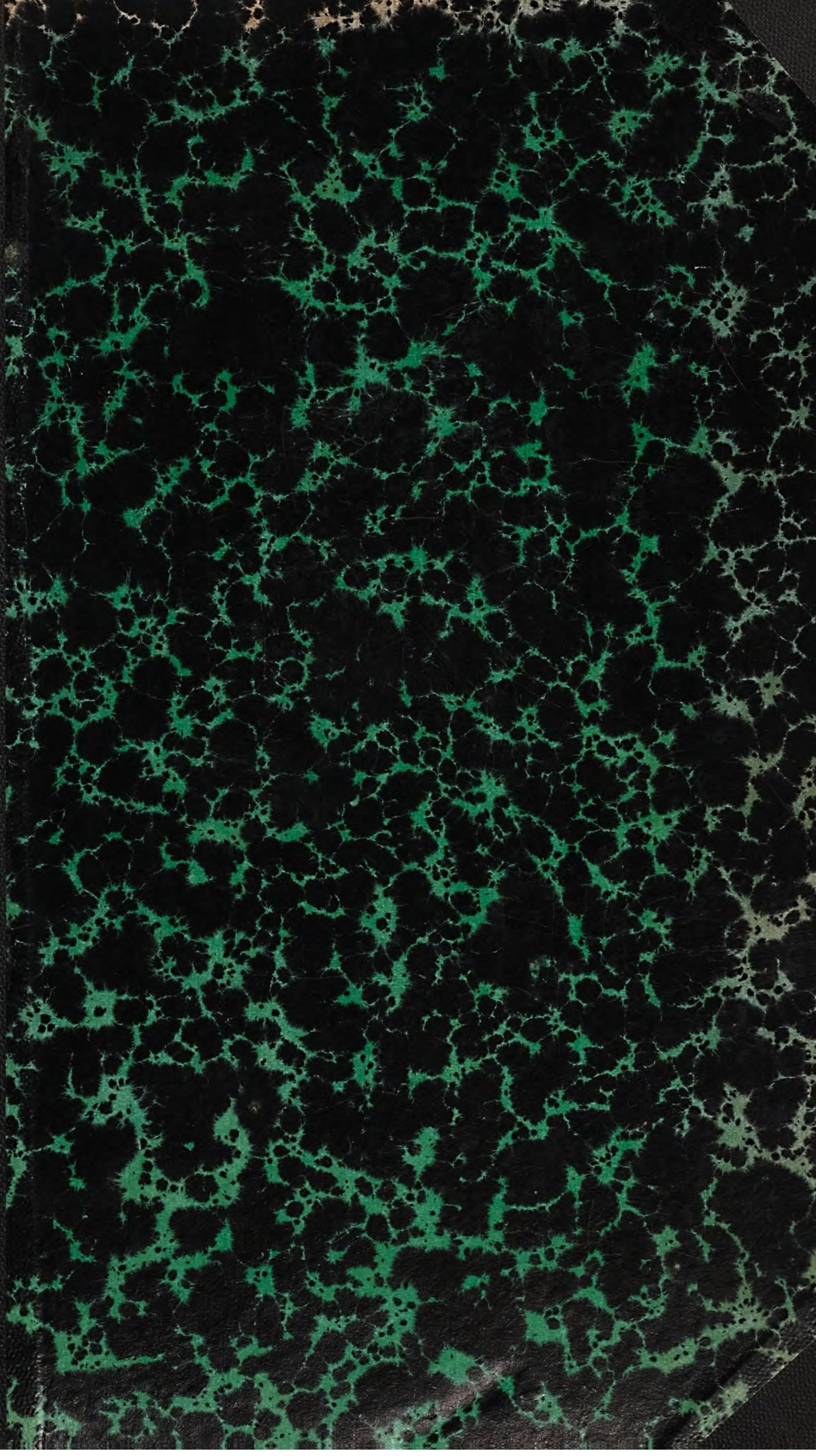


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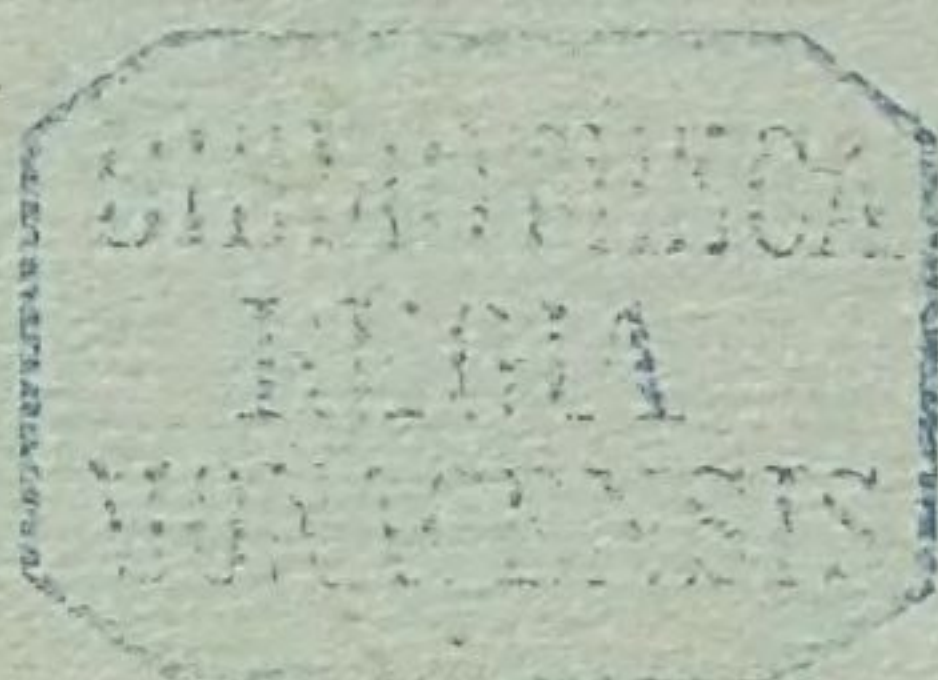
Ms. A. 147 $\frac{5}{-}$ Rogers

THE UNIVERSE

A NEW COSMOLOGY.

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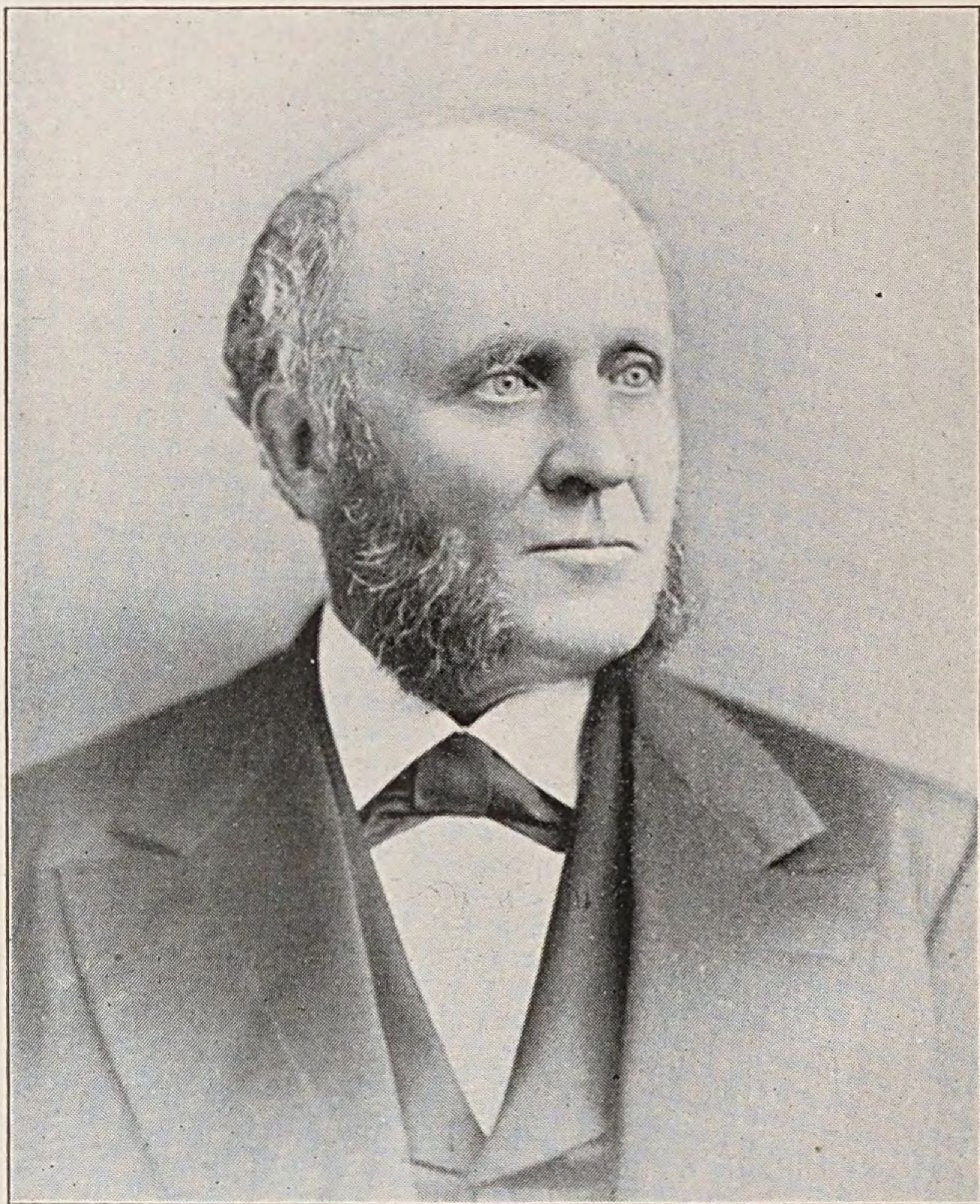


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The Academy of Sciences
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With Compliments
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Danforth. N.Y. U.S.A.
April 26th 1899.



Very truly yours.
H. R. Rogers.

THE UNIVERSE,

OR THE SECRETS OF THE
SUN AND STARS.



BY

HENRY RAYMOND ROGERS, M. D.

DUNKIRK, N. Y.

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THE UNIVERSE,
OR THE
SECRETS OF THE SUN AND STARS.



WHAT is the Universe? How is it constituted? The telescope reveals to the eye of man millions of bright star-worlds which occupy the universal space. The universal space is inconceivably cold, and no particle of heat can exist therein. The universal space is utter darkness, and no ray of light can penetrate this all-pervasive darkness. Celestial distances are staggering to contemplate. Such is the universe in its vastness and its mystery.

These great fundamental facts, viz.: the infinity of stars, the infinity of distances, and the inconceivable cold and darkness of space, must determine what shall be the cosmical philosophy of the future.

In view of the foregoing facts, the inference becomes conclusive, that some form of energy instantaneously and incessantly passes from sun to earth and from star to star, and arouses the atmosphere of each to heat, and light, and indues each body with its gravitative

and other powers. What this energy is essentially, what its source and mode of development, is no longer a mystery.

What are those bright inhabitants of the skies, the starry host, and how may they be studied? The telescope reaches out into millions and billions and trillions of miles of space, and yet it reveals nothing of their essential nature and composition. The most powerful of all telescopes, the Yerkes, and the Lick, show nothing of the constitution of the moon, even less than a quarter of a million miles distant. The spectroscope, according to Janssen, and Newcomb, "can give no definite information respecting the constitution of solid bodies in space," and the sun and stars are solid bodies like unto the earth. The eye is useless in this field. The study of the stars by direct observation, therefore, furnishes no positive information in regard to their nature and composition.

But to-day an abundance of clear and satisfactory data for this study are at our service, in the form of unquestioned facts and most fitting analogies. To this end we may justly apply the knowledge which we possess in regard to our solar system, and particularly of the body upon which we live, and which we know so well.

The earth is a star like unto the millions of other stars. The inhabitants of the earth possess the Divine

nature, and no star-world can be inhabited by a race more elevated. Since, therefore, the diminutive earth is filled with the highest type of life and intelligence, and possesses all conceivable requirements which suit it to the use of man, it follows conclusively that it differs from the largest star only in its dimensions. Thus all star-suns and stars are suited for habitation.

The identity of constitution of the starry worlds is becoming daily more firmly established as a fundamental principle in science. Distinguished authorities in this field express the following opinions, viz.: "The sun is composed of the same materials as the earth." "The distant fixed stars are of a composition identical with that of the sun." "What the earth does is done by all the other spheres." "Nothing really distinguishes our sun from the multitude of stars which shine in the heavens." The distinguished Secretary of the Smithsonian Institution, Mr. Langley, says: "The question of identity is perhaps on the whole the most momentous one which science has yet brought us." He says truly, for the whole superstructure of physical science must mainly rest upon this principle. Since such identity of constitution of the starry worlds can not be disproved, the earth may be taken as the type or pattern of them all.

What, then, is the earth, that it should be capable of illustrating the nature and constitution of the

millions of star-worlds? Let the earth speak for itself. The earth's surface is covered with mountains, hills, forests, fields and waters. These are some of its visible manifestations. The earth and sun, and all the stars, possess another constituent, which never has been adequately asserted by science. This constituent is invisible. This invisible essence constitutes what might be called the soul of the earth. It is almost as tenuous as spirit, yet it is substantial. It may be amassed, condensed and rarified; and mass, condensation and rarefaction, are properties inseparable from matter. It fills the whole body or mass of the earth to repletion, and extends outwards far beyond the earth's visible surface, and mainly constitutes the atmosphere. It acts instantaneously throughout the solid earth, and is in constant interplay between the earth and atmosphere. This vital constituent of the earth is also the very soul of the universe. It has instantaneous retroactions between the earth and sun, and between all the stars of the heavens. Space and distance are annihilated, so far as interstellar action is concerned, and all the stars are as if standing side by side.

The earth is a magnet with a magnetic axis and poles, and filled with the magnetic or electrical energy. This electrical energy or principle is the mysterious, invisible constituent, which fills the earth and atmosphere. The sun and all the stars are magnets, "polar-

ized in immensity" (Hugo). Their motions are perpetual. They turn upon their axes and move in their orbital pathways after the manner of the earth. Thus to the celestial MASSES, must be added celestial MOTIONS, and celestial VELOCITIES.

The energies embodied in the star-masses, therefore, must be associated with their MOTIONS. It was the highest aim of Aristotle, the so-called "Father of Science," to reduce the phenomena of nature to a single principle of explanation. He said: "All force is due to motion, the impulse of the motion of the heavenly bodies." This speculation of 2,300 years ago has to-day become a demonstrated truth. Since force is not a self-existent entity, and since it requires incessant renewal, no other source save celestial motions is capable of meeting every requirement for its development on the universal scale. The genesis of all force is attributable only to a single cause, viz.: the initial impulse, or power, which set all spheres in motion in vacuous space. Thus the universal force is essentially THE ENERGY OF CELESTIAL MOTION.

That these motions are, we know, and the failure to take account of celestial motion as a fundamental principle in science has vastly hindered progress in this field.

The rule for estimating the power of a mass in motion applies alike to stars and cannon-balls, viz.:

multiply the weight in pounds by the velocity in feet per second. This principle, applied to all the stars in motion, accounts for the development of an amount of energy adequate to every demand for a universe. The universal force thus stands accounted for.

Of all the words in our language there is not one of greater significance than the word MOTION. With proper conceptions in regard to motion, as a cosmical principle, the mystery of the sun, the stars, and the universe vanishes, and the whole field of philosophy becomes illumined.

The most striking effects of motion on the terrestrial scale are now observed in the falling waters of the Niagara river. It is now practically demonstrated that the 5,000,000 (estimated) horse-power embodied in these motions, with adequate facilities for transmission, would supply with heat and light the city of Buffalo, or a city in China nearly 12,000 miles distant. If, therefore, the motion of the waters of the diminutive Niagara river can produce heat, light and power, in any city upon the face of the earth, then what may not the sun do through the power of its motions?

Magnetic energy fills a magnet and surrounds it like an atmosphere, and this power acts alike upon the scale of atoms and stars. The size of a magnet may vary from that of an atom, to that of a star-sun. If the strength of a magnet may be judged by its dimensions,

what must be the power embodied in our earth-magnet containing 250,000,000,000 cubic miles of matter, rotating with the velocity of 25,000 miles per day, and moving in its orbital pathway at 1,500,000 miles per day? Or, our sun-magnet, 1,250,000 times larger than the earth, and rotating with the velocity of 100,000 miles per day?

It is a principle in science that a body once set in motion in vacuous space must continue to move onward with its initial velocity forever. The universal force, therefore, is perpetual, and unvarying. Thus, during all the ages, the sun has not been known to lessen a single foot in its diameter, or a single foot-pound in its energies, and the distance between the sun and earth never has been known to change. The sun therefore is not consuming.

It is a principle in electrical science that every movement of one body near another disturbs and puts in motion the electric current in both bodies. In our philosophy of gravity we simply extend this law from the terrestrial field to the celestial. The starry world-magnets are so constituted that as they rotate with exceeding velocity in space, they evolve between them electrical currents in great cosmical circuits. The electricity thus developed through the rotation of the star-dynamos passes unhindered from star to star throughout the universe, through the medium of interstellar

circuits. Thus the nature, the source, and the action of the universal force, are explained upon the clearest and best-established principles of science.

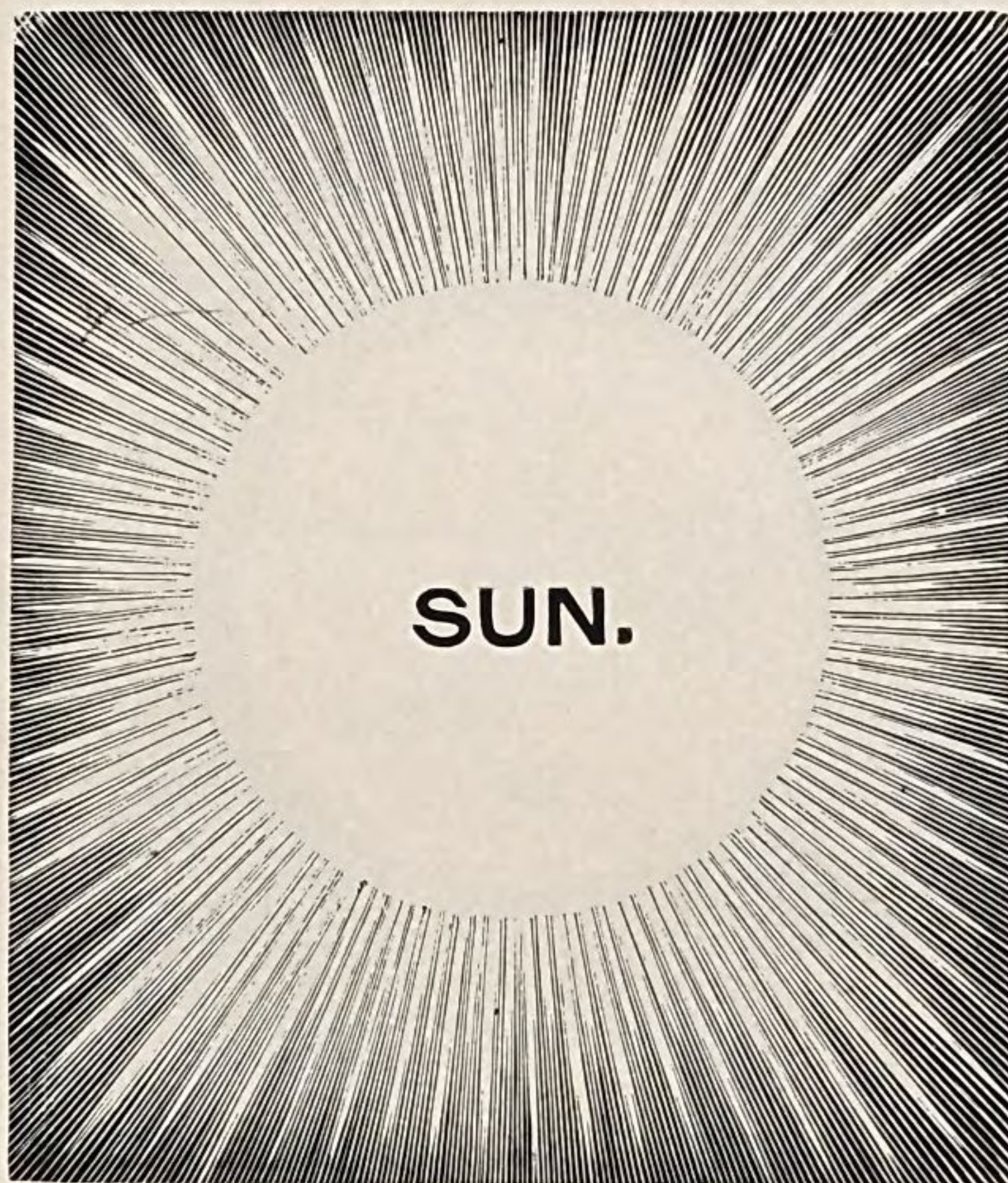
One hundred million dynamo-magnet stars, filled with life, intelligence, and beauty, are heated and lighted, and held in all their due relations through an agency which never has been asserted by science; and all are pervaded with this essence, or spirit, or soul, which acts and retroacts, to and fro, as instantaneously and incessantly as if they formed parts of one vast whole. Behold a veritable UNITY OF WORLDS! What a revelation! A spectacle of such grandeur, sublimity, and power, never before has been even dreamed of in man's philosophy.

All pictorial illustrations of the sun represent that body with bright lines radiating in all directions into space.

PLATE I. These bright lines imply that actual heat and light are produced within, and of the sun itself, and project from it in all directions and to all distances into the surrounding cold and darkness of space. This pictured absurdity, this bright-rayed deception, to-day holds full sway over the minds of men of every degree of intelligence. But this view of the sun is strangely inconsistent with, and antagonistic to, certain well-known cosmical facts. Science teaches, and demonstrates to be true, that the universal space is incon-

ceivably cold, and utter darkness. Flammarion says: "Beyond the bright envelope of each starry sphere is found only the black of infinite space." A "burning,"

THE SUN OF SCIENCE TO-DAY—



"THAT VISUAL, GLOWING GLOBE, THE SUN."

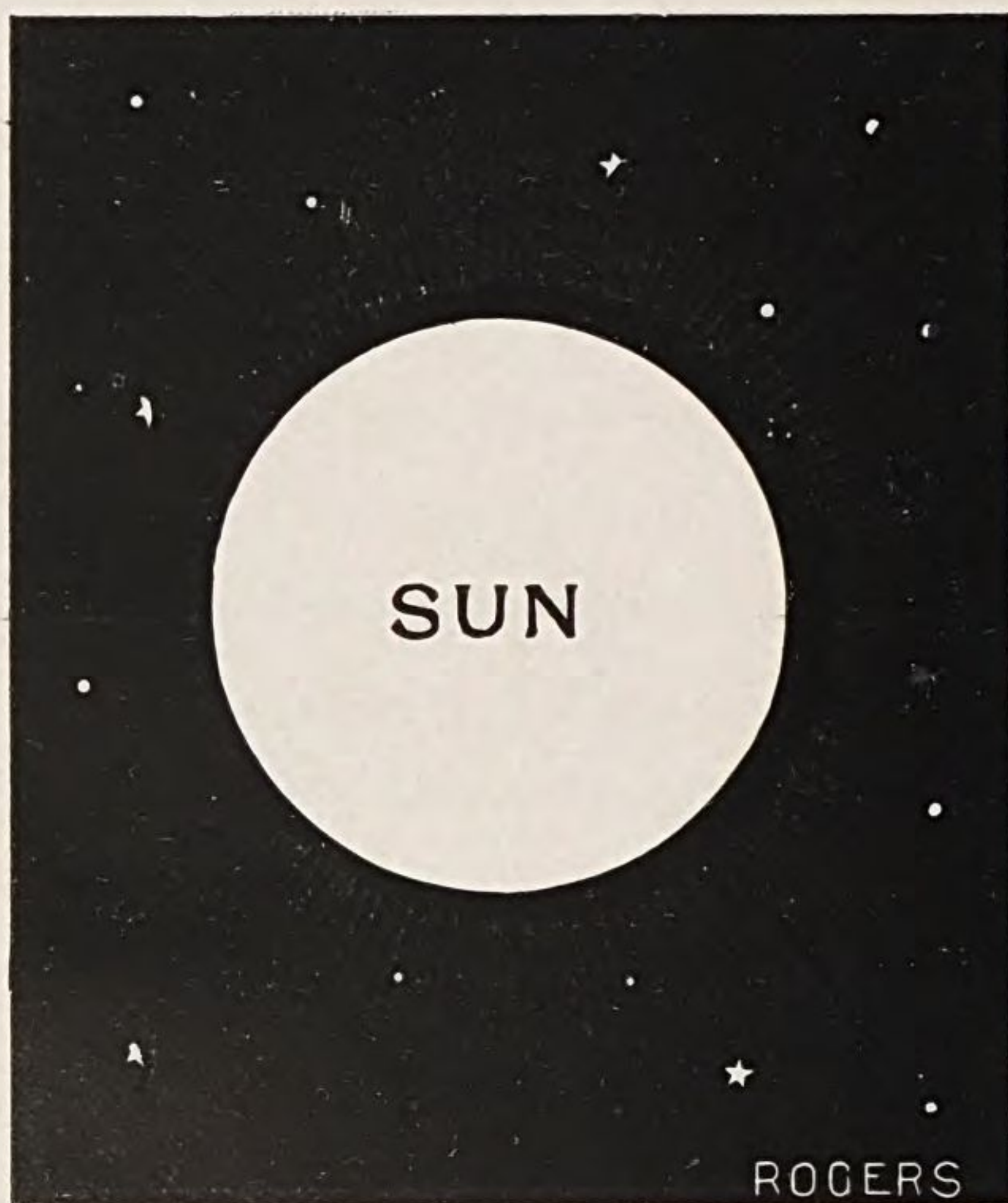
PLATE I.

"fire-ball" sun thus becomes an impossibility, an absurdity.

PLATE II shows the sun surrounded by darkness and the stars. Plate II, therefore, becomes classical in its teachings. It reveals at once some of the highest truths of the whole domain of science, viz.: that some-

thing, which is neither hot nor bright, passes instantaneous and free, to and fro between the sun and earth, and between all the stars of the heavens, and arouses

THE SUN OF THE FUTURE



SURROUNDED BY DARKNESS AND THE STARS.

PLATE II.

the atmosphere of each to heat, light and power; that the earth and all stars are heated and lighted by some agency and through some process which science never has satisfactorily explained.

But what shall we say of the sun's dazzle, which is so real and so painful to the human eye? Since no par-

ticle of light can come from the sun to the earth through the darkness of space, this phenomenon is simply an optical illusion. Such dazzling brightness cannot be located at the sun, neither is it found in the black of infinite space, nor in our atmosphere; therefore it can be found only in the depths of the eye of the beholder; *i. e.*, upon the retina. The electrical rays which come from the sun and stars through millions and billions and trillions of miles and more of darkness of space, bring in their train no actual light, but simply awaken the nerves of the retina to A SENSE OF BRIGHTNESS, more or less vivid, according to the source and distance of their origin.

In the whole field of cosmical science there is no phenomenon which has proved so deceptive and misleading, since it has always held the mind securely bound to false conceptions of the sun and universe.

Three hundred years ago it was first demonstrably shown that the universal force is electrical. The experiment was due to one James Metius, a Hollander, a maker of lenses; and according to Galileo, he was the inventor of the telescope. Metius constructed a lens from a piece of ice, and with it converged the rays of the sun to a focus, and set fire to combustibles. Lead also has been melted by the same process. No person who properly exercises his faculties of thinking and reasoning will accept the conclusion that actual heat

may pass through the 93,000,000 miles of "glacial cold of starry space" and a lens of ice and ignite combustibles and melt lead.

That the sun's rays are electrical has been otherwise fully demonstrated. In Chambers' Journal of August 13, 1881, it is asserted that Prof. Barlocci found that a natural magnet, which would carry one and a half Roman pounds, had its power nearly doubled by twenty-four hours exposure to the sun; that M. Zantedeschi found that an artificial horseshoe magnet which carried thirteen and one-half ounces, reached thirty-one ounces by several days' exposure; also that magnets acquire strength when the north pole is exposed to the sun's rays, and lose strength when the south pole is exposed. These results conclusively prove that the sun's rays are electrical.

Thus three hundred years ago it was for the first time demonstrably shown that the sun is a stupendous celestial dynamo, with all which that term implies. It acts its part in the great cosmical field, through the medium of a vast terra-solar circuit. From such electrical retro-actions on the celestial scale, we learn the secret of the universe. The inter-stellar circuit thus becomes the KEY to the solution of the problem of the universe.

The action of force at a distance, through a vacuum, and without the intervention of some transmitting

agency, has puzzled the most profound philosophers since the birth of science, but to-day this phenomenon finds its explanation in this new and improved interpretation of electricity.

Gravity instantaneously reaches out from star to star and holds the millions of star-worlds in all their

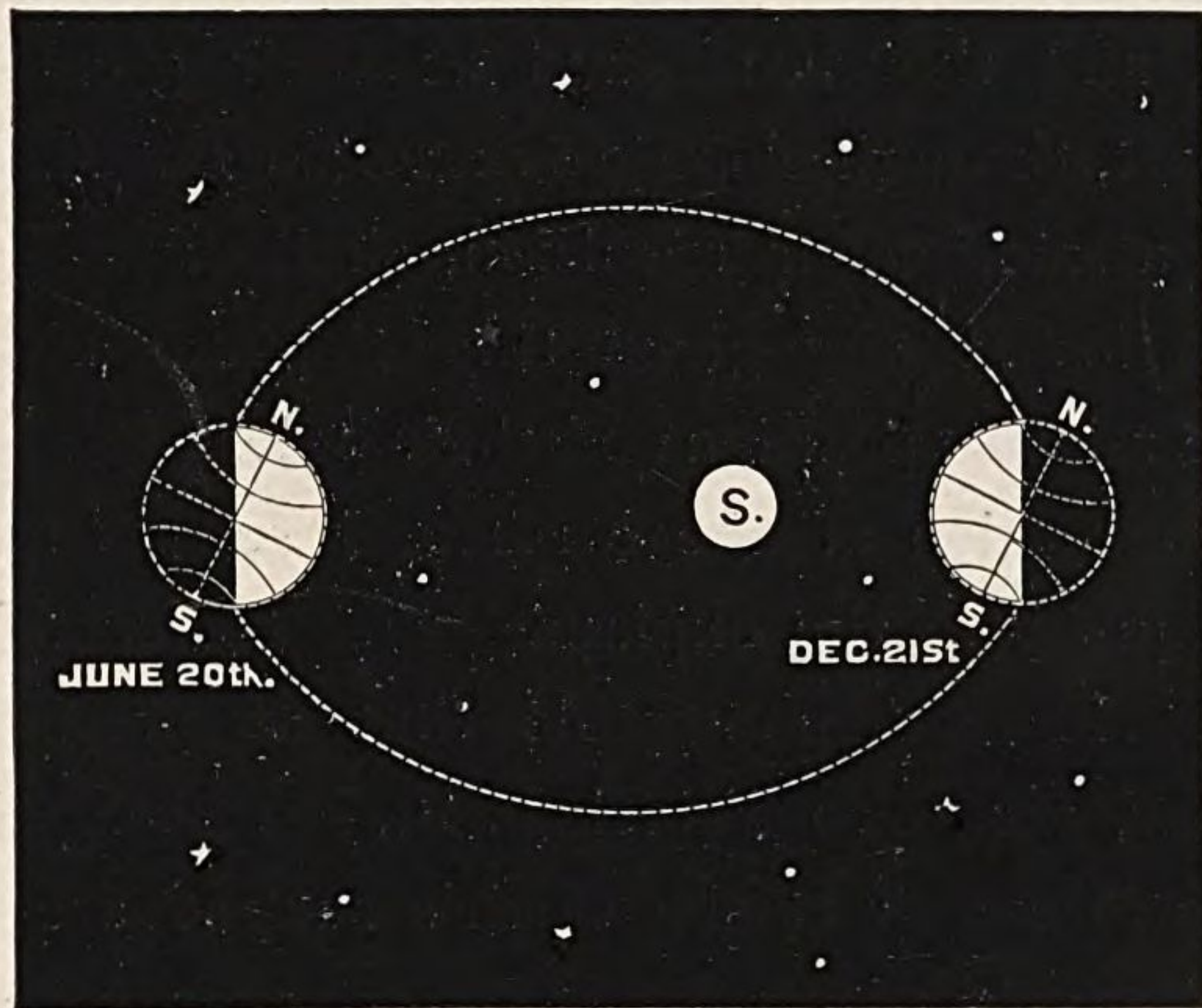


PLATE III.

due relations. The distance between the sun and earth never has been known to change a single metre. This is conclusive evidence that the sun never has perceptibly changed either in its energies or its dimensions. It is not consuming. It is now demonstrably shown to be electrical in its activities. For

example, the sun and earth and all related spheres being vast magnets, excited into activity by their motions, their relations and movements are mainly due to polarity. Thus the earth's negative south pole, *s*, PLATE III, is nearest the sun December 21st, and those bodies are then drawn into their closest proximity through electrical ATTRACTION. Six months later both the geographical and electrical relations are reversed, and they are found at their greatest distance apart, through electrical REPULSION. Therefore whether attraction, or repulsion, shall exist between those bodies at any given time depends altogether upon the relative positions of their poles.

The conception of the earth and sun as magnets, applies equally to the explanation of the earth's axial rotation. It is demonstrable that at precisely the same hour, viz., two o'clock P. M., heat intensity and magnetic intensity at the earth's surface are coincident. From that hour the electrical energy decreases until two o'clock A. M., when it is found to be the least, or NIL. Thus at two o'clock P. M. the positive sun-currents on the one hand, and the positive earth's surface and atmosphere at thirty degrees west meridian on the other hand, being in like electrical conditions, *i. e.*, electro-positive, mutually repel each other, and the consequent PUSH moves the earth in rotation. The rotating earth, turning eastward, is continually

carrying its negative condition of the night into the field of the positive sun-currents, and a mutual attraction takes place with a consequent PULL upon that side. Thus is engendered an incessant attraction on the east side of the earth, and repulsion on the west side, giving to that body its axial rotation, This philosophy of explanation of the earth's axial rotation was first recognized and asserted December 18, 1881. The great Faraday once said: "The discovery of a relationship between gravity and electricity would have a bearing in importance beyond all conception in elucidating not only the facts connected with these subjects, but also others of a high importance, there being scarcely a limit to the subjects which would be illuminated by it."

From the study of electricity in the field of its greatest manifestation, *i. e.*, gravity, we shall be better prepared to grapple with the problems which have to do with celestial motions, with celestial electrical currents, with inclinations of axes, and eccentricity of orbits, with dimensions of spheres, and the velocities of their motions.

The sun sends out his energies directly to his satellites and other celestial bodies, wasting none in empty space.

The electrical process of heating and lighting the earth and sun, and all the stars of the universe, is illus-

trated in PLATE IV. If the lines (a , b) be drawn from the sun to the earth, tangent to both, they will form a tapering space, with the sun at the big end, and the earth at the small end, giving to the space the form of

SOLAR-CONE, OR CONE-SPACE.

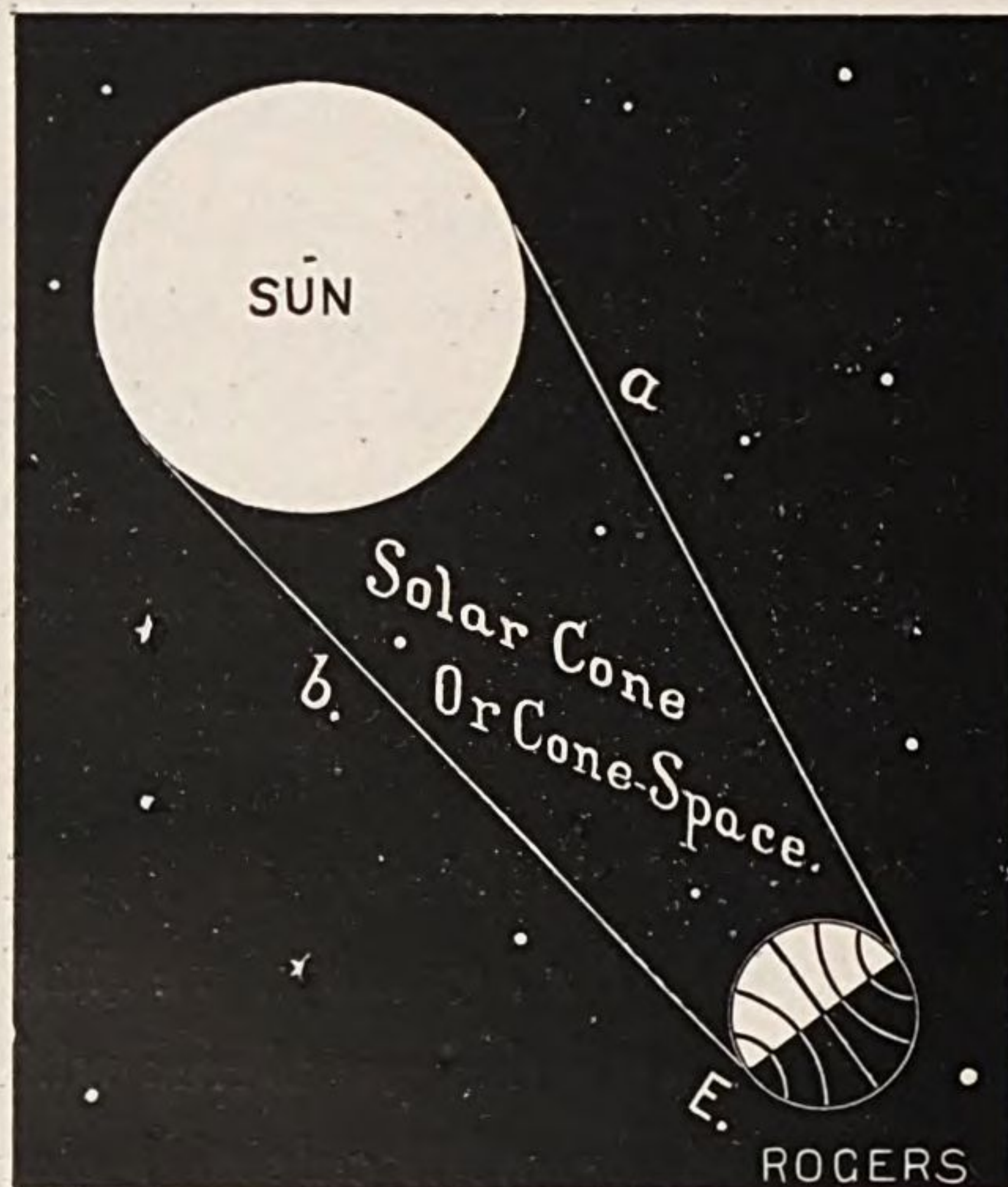


PLATE IV.

a truncated cone. Within this cone-shaped space all the activities between the sun and earth take place.

The electrical currents from the sun pass invisible and free through the 93,000,000 miles of cold and darkness, until they meet their first RESISTANCE at the earth and its atmosphere. Electricity cannot pro-

duce either heat, light or power, unless its currents are RESISTED in their progress. In the action which takes place between the electrical sun-currents and the atmospheric mass the so-called sun-heat and sunlight become developed. Hence the source of these phenomena. In this process the atmosphere performs a function which never has been ascribed to it by science; viz., the part performed by CARBON and COIL in the development of electric heat, light and power. In other words, AN AERIAL BLANKET CARBON, so to speak, covers the surface of the whole earth, and whenever, or wherever, the electric sun-currents come into contact with this enveloping atmospheric cushion, heat, light and power may be developed therein.

The electrical sun-currents, after exciting our atmosphere to these and other activities, then proceed onward into the earth and awaken that body to its gravitative and other electrical effects.

From thence these currents return to the sun and perform at that body identically the same functions as at the earth, *i. e.*, they arouse the sun and its atmosphere to heat, light, gravitative and other electrical activities. In this electrical return-current, therefore, is involved the greatest secret of the sun. Indeed, without such action of interstellar RETURN-CURRENTS neither the earth, the sun, nor the universe, could exist for a single hour. In this relation, an electrical RE-

TURN-CURRENT to the sun, thus completing a celestial circuit, becomes truly a sublime idea, since it opens up a new vista of creation. The development of the universal force through the motions of the celestial masses, and, too, WITHOUT LOSS OF SUBSTANCE, is truly a divine process; while the theory of burning suns with a consequent stupendous WASTE, is a conception intensely human, and of characteristic weakness.

The world is lighted by the moon at night, not through reflected sunlight, since actual light cannot pass from the sun to the moon; neither can the moon transmit actual light to the earth through the 240,000 miles of intervening darkness, but rather electrical currents from the moon develop within our atmosphere the gentle moonlight.

In the TERRA-SOLAR and TERRA-LUNAR currents we have a clear and satisfactory explanation of the process by which the world and the whole starry heavens are heated and lighted. The great problem of the universe is capable of solution only upon this principle of inter-stellar electrical retro-actions. In other words, the universal force is essentially THE ELECTRICAL ENERGY OF CELESTIAL MOTION.

The universe has other mysteries which reach their solution from the standpoint of the earth. Thus the corona, or GLORY, that circle of light which appears to surround the sun during a total eclipse, has proved

deceptive, like unto the so-called sun-heat, sunlight and sun-dazzle. The unerring camera shows some of the brightest coronal rays as located on the earth-side of the moon, and near the center of that body. This fact is conclusive. It shows that the corona is located in our atmosphere. Mr. Lockyer, the distinguished author of "Solar Physics," says: "I confess the conviction that the corona is nothing else than an effect due to the passage of sunlight through our atmosphere." It can be due only to the action of electrical currents upon our atmosphere.

The sun appears as if surrounded by a fanciful fringe of rapidly changing forms and delicate and varying shades of color, called Solar Prominences, or Solar Flames. Such clearly-defined and rapidly-changing bright forms, and such delicate and varying shades of color, cannot be discerned through 93,000,000 miles of darkness of space.

A distinguished spectroscopist tells us: "The air, the clouds, everything between us and the dark moon, gives the same spectrum as we get from the prominences themselves. Like the corona, this phenomenon must be located in our atmosphere, and due to electrical causes.

But what shall we say of the so-called sun-spots which appear as if located upon the face of the sun? The sun-heat, sunlight and sun-dazzle, the corona and

prominences, all appear quite as real, and as if located at the sun; and shall this spot-phenomenon prove an exception to this great rule? All these have proved to be mere superficial appearances, so far as the sun is concerned; then why should not the sun-spot be classed with these, as purely an optical illusion? That it is such an illusion is now demonstrable. Thus single spots and groups of spots which, if located at the sun itself, would occupy an area of millions of square miles, appear and disappear instantaneously. This implies velocities wholly impracticable. This phenomenon is therefore an illusion, so far as being located at the sun is concerned. The fact of the identity of constitution of the sun and earth also removes this phenomenon from the field of the sun. Scheiner, who was one of the first to observe these spots through a telescope, was uncontrolled by theories in his estimate of their character and location. He held it "impossible that they could be on the sun itself," and imagined some of them to be "as far from the sun as the Moon, Venus or Mercury."

Sun-spots are pictured and described as BLACK (PLATE V), yet present science teaches that the darkest part of a spot is several thousand times as bright as an equal area of the moon.

There are also bright sun-spots, even brighter than the sun itself. These bright sun-spots must be due to

the same causes as the dark spots, and subject to the same laws. These bright spots, like the dark ones, sometimes appear and disappear instantaneously; and the brightest and darkest spots sometimes occupy the

SUN-SPOT.

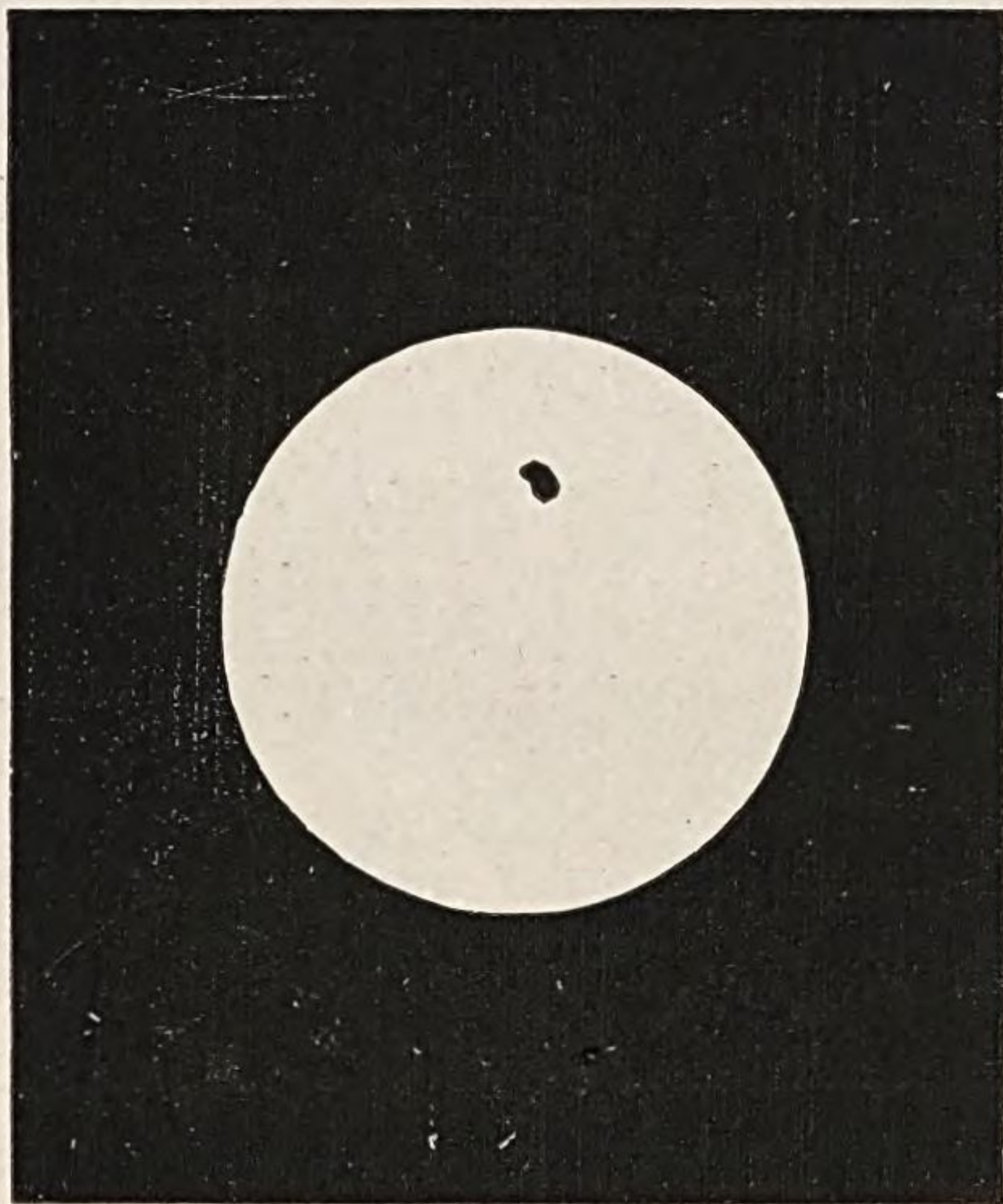


PLATE V.

same field at the same time and without interference. Thus two astronomers, Mr. Carrington and Mr. Hodgson, while viewing a large, dark spot from widely separate localities, saw two bright spots, even brighter than the sun's disc, suddenly appear upon the face of the dark one. These bright spots moved along the

face of the dark one with a velocity of 6,000 or 8,000 miles per minute, for the space of five minutes, and suddenly disappeared. This peculiar double spot manifestation becomes fatal to the "cavity" theory of to-day.

Simultaneously with the appearance of the bright spots over the dark one, violent electrical effects occurred at the earth. Operators, both in this country and abroad, received shocks, and automatic electrical instruments were disturbed over both continents. This is proof of an electrical relationship between the so-called sun-spots and the earth. Since but one force exists in nature, and that force is electrical, the sun-spot must of necessity be purely an electrical phenomenon.

Herschel's fixed idea was that the darkness of a spot upon the sun was an indication of a cool and habitable globe under the shining envelope of the sun.

Our late distinguished astronomer, Prof. Peters, when in Italy saw an expiring sun-spot, and the changes which he described were evidently electrical in their character; and from the velocities implied in those changes, they could by no possibility have taken place at the sun, or beyond our atmosphere. Sun-spots are thus shown to be electrical, and their development as purely atmospheric phenomena is explainable upon the best-established principles of electrical science.

The sun-spot theories of to-day are inconsistent and contradictory. The careful, painstaking astronomer, in making his illustrations of sun-spots, unconsciously draws upon his imagination and produces objects most fanciful, unreal and wholly misleading. For example, PLATE VI is a so-called TYPICAL sun-spot. This illustration is formed from the most striking parts of sev-

TYPICAL SUN-SPOT.



PLATE VI.

eral different spot-photographs, thus being confessedly a perversion of fact. It is therefore deceptive, and thus becomes a stigma upon science.

Most wonderful to relate, not one of the sun's grandest and most striking phenomena is found located at the sun itself! Thus the force of gravity is not inherent in the sun, as always supposed, but becomes developed through the reciprocal action of sun and earth, each in the ratio of its mass and its velocities.

The so-called sun-heat and sunlight, the corona, the prominences and sun-spots are purely atmospheric phenomena, and the sun's dazzle is found only in the eye of the beholder. The earth's atmosphere thus performs a part in the great cosmical scheme such as never has been recorded in the annals of science.

There is yet another function of the atmosphere most vital in its character and stupendous in its results, and which science never yet has recognized. Thus the atmospheric mass is deepest and densest at the equator, and from thence diminishes with a uniform ratio towards the poles, and the electric sun-currents are most direct and forceful at the equator, and diminish in like ratio towards the poles. The atmospheric mass acts the part, so to speak, of a *buffer* to the electrical sun-currents. Without such protection, the surface of the earth would itself become the OBJECT OF RESISTANCE to those currents, and consequently the whole earth would be destroyed by heat.

The power of the sun's currents, when not intercepted by the atmosphere, is seen in the arctic regions where the air is most tenuous. Here the surface of the earth becomes the principal OBJECT OF RESISTANCE, and the result is seen in a phenomenal growth of the crops of the fields during the short arctic summer; a rapidity of growth unequaled in more southerly climes. Here,

too, the face of the arctic explorer becomes the OBJECT OF RESISTANCE to these currents. The arctic sun is always low on the sky, and its rays, consequently, are most oblique and powerless, yet they burn the unprotected skin, even in low temperatures.

Lieutenant Gilder says: "Nowhere on the earth is the traveler more annoyed by acute sunburn than in the polar regions. The heat of ordinary exercise compels him to throw back the hood of his fur coat, and, by exposing his head, his face not only becomes blistered, but his entire scalp is affected as severely as if a bucket of scalding water had been poured on him."

Lieutenant Schwatka tells us that his whole party, while on a sledge journey, were so severely burned that not only their faces but their entire heads were swollen to nearly twice their natural size.

It therefore becomes manifest that the earth would become a lifeless, useless mass, and invisible from all other star-worlds, if not surrounded by an atmosphere; *ergo*, every sun, moon and star, if unprovided with an atmosphere, would be both uninhabitable and invisible. In other words, without stellar atmospheres the universe could not have an existence. A new history, a new career now opens up for our atmosphere, and for the atmosphere of every star-sun and star.

Science enters upon a new era in its history. The distinguishing feature of the coming cosmical system will be UNITY. All force is one, all life one, and all star-worlds are held together as one,—THE UNIVERSE IS A UNIT.

In the foregoing pages we have demonstrably shown that the universal force is electrical, that “all physical phenomena, every form and manifestation of force, without a single exception, may be traced to a mere transmutation of the electrical energy.” We have also clearly demonstrated that an amount of electrical energy adequate to all demands for force for a universe, is embodied in the motions of the starry worlds.

Habitability is the grandest attribute of a celestial body. Man is the highest constituent of the earth-star, and no star-world contains a higher than man. Life in its infinity of forms is an electrical phenomenon; millions of stars reveal their presence amidst the darkness of space, through invisible electric currents; and a hundred million star-worlds, and the atoms of which they are constituted, are held in all their due relations through electrical retro-actions. Thus, among all cosmical facts, none is more impressive than the grand fact that the earth, the sun, and all the heavenly bodies are possessed of the electrical energy, and by virtue thereof exert a powerful influence over each other; thus giving

rise to all phenomena, both terrestrial, and celestial, which make up the subject matter of cosmical science. Thus stands revealed the highest principle in cosmical science which man may contemplate, viz.: THE ELECTRICAL ENERGY OF CELESTIAL MOTION.

Have we not presented higher and clearer conceptions of THE UNIVERSE? Aye, have we not outlined A NEW COSMOLOGY?

Electricity,

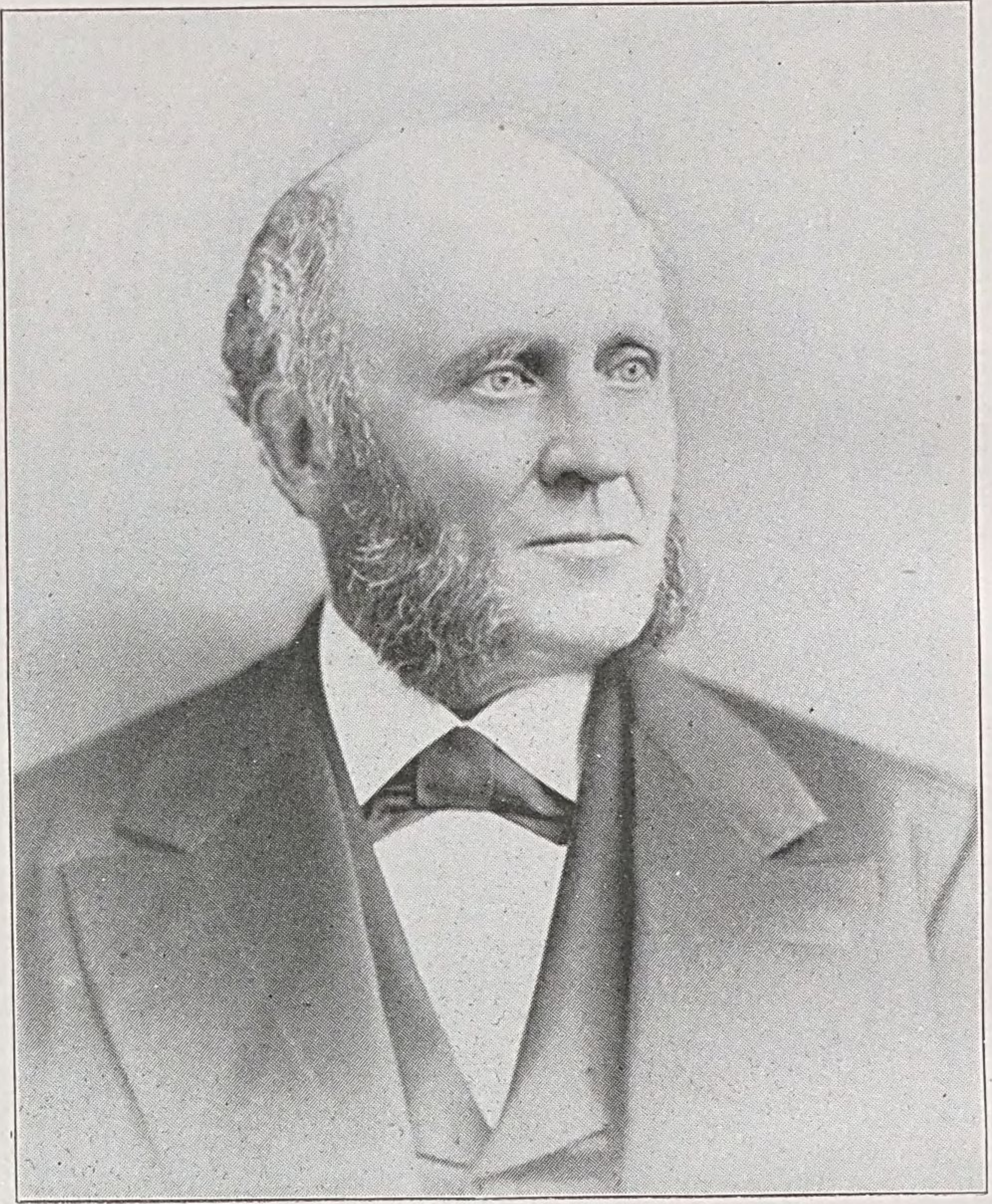
The Universal Force.



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1898.

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BUFFALO, N. Y.

ELECTRICITY,

THE UNIVERSAL FORCE.

THE UNIVERSAL FORCE—ITS NATURE.

BUT one force exists, and that universal force is demonstrably electrical. All physical phenomena, every form and manifestation of force without a single exception may be traced to the mere transmutation of the electrical energy.

Force cannot be lost, wasted, or diverted. The currents of force which instantaneously and incessantly come from the sun to the earth, and hold those bodies in all their due relations, must, according to this law, return to the sun in equal volume and power. In this process is found a stupendous electrical circuit, a *terra-solar* circuit. In such interstellar action, and retro-action is embodied the secrets of the sun—the secrets of the Universe.

The earth is a magnet with a magnetic axis and a north, or positive-pole, and a south, or negative-pole. The sun and all stars are magnets polarized in

immensity. It is reasonable to suppose that all star-worlds are indued with such vast electrical powers for actual use; therefore, since those powers cannot be expended upon vacuous space, they must reach out to, and include in their operations, all their celestial neighbors.

In the action of the *terra-solar* and *inter-stellar* circuits, space and distance become annihilated, so far as electricity is concerned, and all the stars of the universe are as if standing side by side. Not only the stupendous energies, but the gentlest and most genial influences of the sun reach out to Neptune, 2,800,000,000 miles distant, with the same facility as to the Earth, Venus, or Mercury.

That vacuum is the most perfect condition for electrical transmission has been demonstrably shown by Edison, Edlund, Gordon, Crookes, and many other electricians.

Electricity is substantial. It may be amassed, condensed, and rarefied; and mass, condensation, and rerefaction are properties essential to matter.

Electricity although demonstrably material, is not a self-existent entity. It acts, and passes on, and must be incessantly renewed. Its development on the scale of the universe is due to the same processes,

and subject to the same laws, as on the scale of the laboratory.

THE UNIVERSAL FORCE—ITS SOURCE.

Aristotle sought the source of the universal force and discovered it where alone it was possible to find it, i. e., in the *motions* of the starry worlds. His words were these, viz: "All force is due to motion—the impulse of the motion of the heavenly bodies." This prophetic inspiration of Aristotle has opened up to mankind a new revelation in the field of cosmical science.

That the universal force is due to MOTION is today demonstrable. MOTION, as a COSMICAL PRINCIPLE, now finds its true position in the problem of the universe. Thus, the POWER of the UNIVERSE is embodied in the MOTIONS of the STUPENDOUS STAR-MASSSES, with their INCONCEIVABLE VELOCITIES. In other words, the universal force is THE ENERGY OF CELESTIAL MOTION. That this source is adequate to the supply of force for a universe, will not be questioned.

It is a principle in science that a body once set in motion in vacuous space must continue to move onward with its initial velocity, forever. The starry World-magnets move in their pathways with such ex-

actness, and uniformity, that eclipses are calculated backwards and forwards for thousands of years.

The *modus operandi* of the conversion of the motions of the star-masses, together with their great velocities, into actual working energy, is now demonstrable.

Guericke and Volta experimentally demonstrated that every movement of one body near another, disturbs and puts in motion electrical currents in both bodies. This principle applies alike on the scale of the laboratory and the universe. The *terra-solar* and *inter-stellar* circuits supply the medium for the transmission of the electrical energy developed through the motions of the stupendous celestial dynamos.

Two great cosmical systems now stand before the world in strange and striking contrast, viz: 1, the system of all past ages founded upon a purely hypothetical "*fireball*" sun, and 2, a wholly new system with MOTION as a COSMICAL PRINCIPLE for its basis, i. e., the motions of the star-masses with their inconceivable velocities.

Most stupendous results are involved in this question, aye, nothing less than the cosmical philosophy of the future. If one of these systems be true, the other must be false. The statement of this question

is simple, and the issue clearly defined and free from either logical difficulties, or puzzling mysteries.

The incandescent system calls for an enormous expenditure of heat on the part of our sun, and the millions of star-suns, and the temperature claimed by science, reaches into the millions of degrees, (Fahr.) Heat is destructive, and such an elevated temperature, without an adequate supply of *star-fuel*, would have ended in the destruction of our sun and the millions of star-suns ages ago.

Another difficulty in the way of the present cosmical system is found in the claims of the infallible law of conservation of force. This law teaches that neither matter, motion, nor force can be lost, wasted, nor diverted. An incandescent sun without resources within and of itself for the renewal of its substance, and its energies, is the very impersonation of wastefulness:—the most prodigious wastefulness which science permits us to contemplate.

An incongruity in the present cosmical system which science never has made account of, is the fact that this so-called incandescent sun, with its 5,000,000 (estimated) degrees of temperature, *does not consume*. The sun never has been known to lessen a single foot in its dimensions, nor a single foot-

pound in its energies, and the distance between the sun and earth never has perceptibly changed.

The foregoing considerations, or either of them, are fatal to the theory of an incandescent sun. But all these are as "trifles light as air," in comparison with another fact, viz: that a "*fireball*" sun cannot sustain human life—cannot be the dwelling place of immortal beings.

We turn from this humiliating picture of millions of star-suns fit only for "*burning*," to the same millions of star-suns filled with all life, with beings divine in their natures, and with all activities. This new philosophy conflicts with no known fact, neither with any dictate of reason, nor with the eternal fitness of things.

This new cosmology is founded upon MOTION AS A COSMICAL PRINCIPLE, THE ENERGY OF CELESTIAL MOTION, in other words the motions of the dynamo-magnet stars.

GRAVITY.

The fact that gravity reaches out from star to star instantaneously, and incessantly, stands unquestioned, and this fact stamps this energy as electrical. No other agency can reach out to the limits of space and act instantaneously and incessantly.

It is a law of electrical action that a body susceptible to electrical excitation, if placed in the current of an electric circuit becomes magnetic. The sun and earth form constituent parts of the great *terra-solar* circuit, and they and all things which they contain become vitalized with that power which we call gravity.

The currents of the *terra-solar* circuit after passing invisible and free through the 93,000,000 miles of vacuous space, find their first *resistance* at the earth. Electrical currents possess no power unless *resisted* in their progress. In the action between the sun-currents and the magnetic earth, the sun and earth become aroused to all their powers. Thus, the power which holds a hundred million star-suns and stars in all their due relations, is explained upon the simplest and clearest principles of electrical science.

The *modus operandi* of the action of gravity as an electrical phenomenon, is illustrated in Plate I. The earth and sun and all related spheres, being vast magnets excited into activity by their motions, their relations and movements are mainly due to polarity.

Thus, the earth's negative south-pole, S, Plate I, is in the field of the positive sun-currents on the 21st of December, and those bodies are then drawn into

their closest proximity, through electrical *attraction*. Six months later both the geographical and electrical relations of those bodies are reversed, and they are found at their greatest distance apart, through electri-

THE EARTH'S ELLIPTICAL ORBIT.

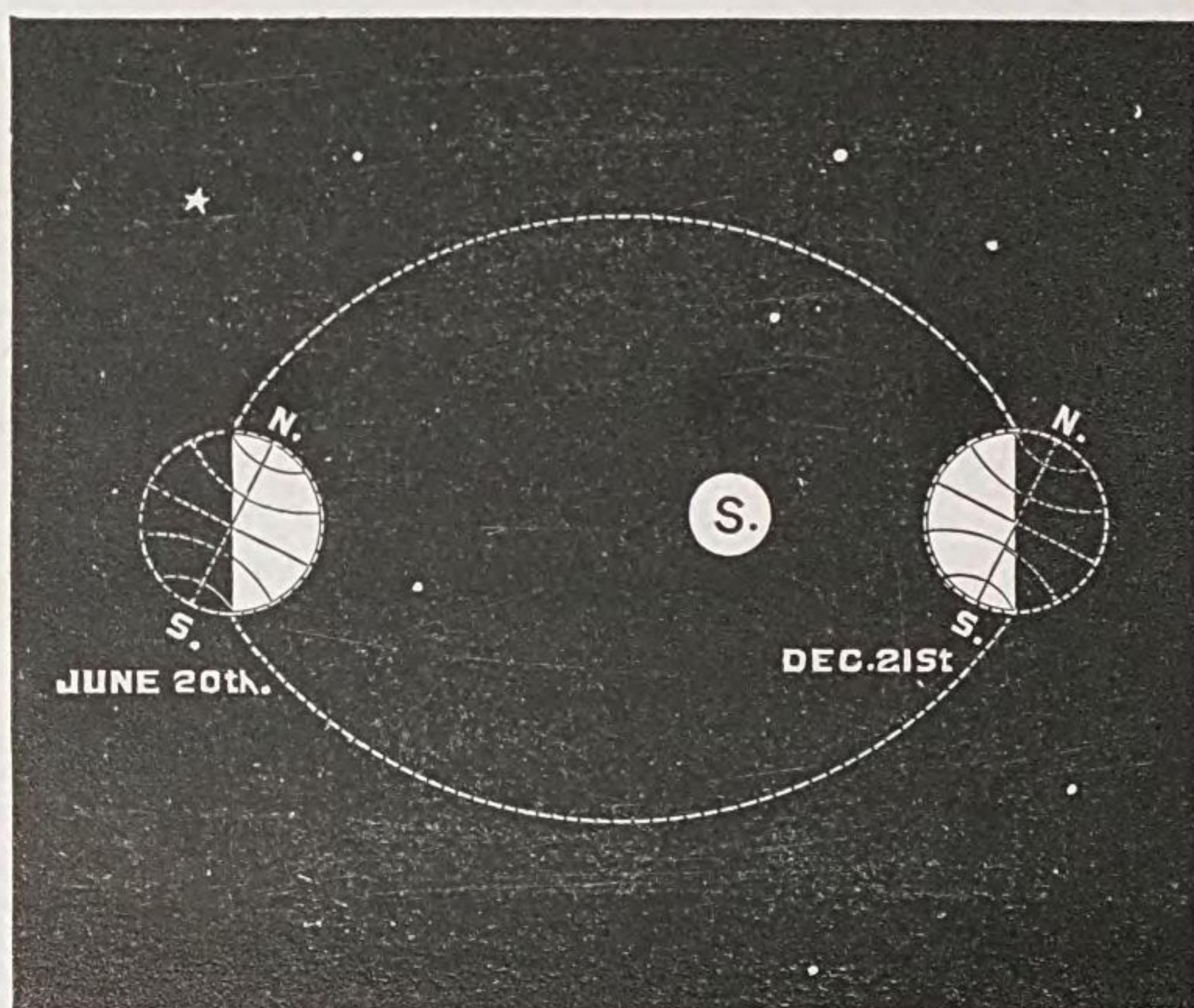


PLATE I.

cal *repulsion*. Whether attraction or repulsion, shall exist between those bodies at any given time, depends altogether upon the relative positions of their poles.

The essential character of the great cosmical principle, gravity, which was but faintly discerned by

those great masters in science, Aristotle, Newton, Humboldt and Faraday, now becomes fully revealed through our modern development of electricity.

Newton supposed gravity to be in some manner related to electricity. He said: "The ultimate particles of matter are endued with inherent forces, or powers, of attraction and repulsion. Newton thus recognized in gravity the operation of a dualistic power, a double acting power which exists in no other form of force save electricity. This idea of Newton, i. e., the *repulsion* of gravity, never has been practically applied to the solution of this great problem. Thus, the highest teachings of this great master have been most strikingly and persistently ignored and disregarded.

On the concluding page of the mechanical portion of his PRINCIPIA, are the following words: "And now we might add something concerning a most subtle Spirit which pervades and lies hid in all gross bodies by the power and action of which Spirit the particles of bodies attract each other at near distances and cohere if contiguous; and electric bodies operate to greater distances, as well repelling, as attracting." "But," he continues, "these are things which cannot be explained in a few words, nor are we furnished

with that sufficiency of experiments which is required to an accurate determination and demonstration of the laws by which this electric or elastic Spirit operates." In these words Newton speaks almost prophetically, as if dimly conscious that this spirit, so wonderful and mysterious, might yet afford the *key* to solve the enigma of gravitation.

Farraday was fully impressed with the idea of a relationship between gravity and electricity, and for many years endeavored to demonstrate the same, but was unsuccessful. A paper recorded in the 24th Series of Experimental Researches, received by the Royal Society, Aug. 1, 1850, on the possible relation of gravity to electricity, he finishes with the following words: "Here end my trials for the present. The results are negative but they do not shake my strong feeling of the existence of a relationship between electricity and gravity." He further said: "The discovery of a relationship between gravity and electricity would have a bearing in importance beyond all conception in elucidating not only the facts connected with these subjects, but also others of a high importance, there being scarcely a limit to the subjects which would be illuminated by it." From the study of electricity in the field of its greatest manifestation,

i. e., gravity, we shall be better prepared to grapple with the problems which have to do with celestial motions, with celestial electrical currents, with inclinations of axes, and eccentricity of orbits, with dimensions of spheres, and the velocities of their motions.

The discovery of an actual relationship between gravity and electricity is now, *un fait accompli*.

THE EARTH'S AXIAL ROTATION.

The conception of the earth and sun as magnets, applies equally to the explanation of the earth's axial rotation. It is demonstrable that at precisely the same hour, viz: 2 o'clock p. m., heat intensity and magnetic intensity at the earth's surface, are coincident. From that hour the electrical energy decreases until 2 o'clock a. m., when it is found to be the least, or *nil*. Thus, at 2 o'clock p. m., the positive sun-currents on the one hand, and the positive earth's surface and atmosphere at 30 degrees west-meridian, on the other hand, being in like electrical conditions, i. e., electro-positive, mutually repel each other, and the consequent *push* moves the earth in rotation. The rotating earth turning eastward, is continually carrying its negative condition of the night, into the field of the positive sun-currents, and a mutual attraction takes place, with a consequent *pull*, upon that

side. Thus is engendered an incessant *attraction* on the east side of the earth, and a *repulsion* on the west side, giving to that body its axial rotation.

SOLAR CONE.

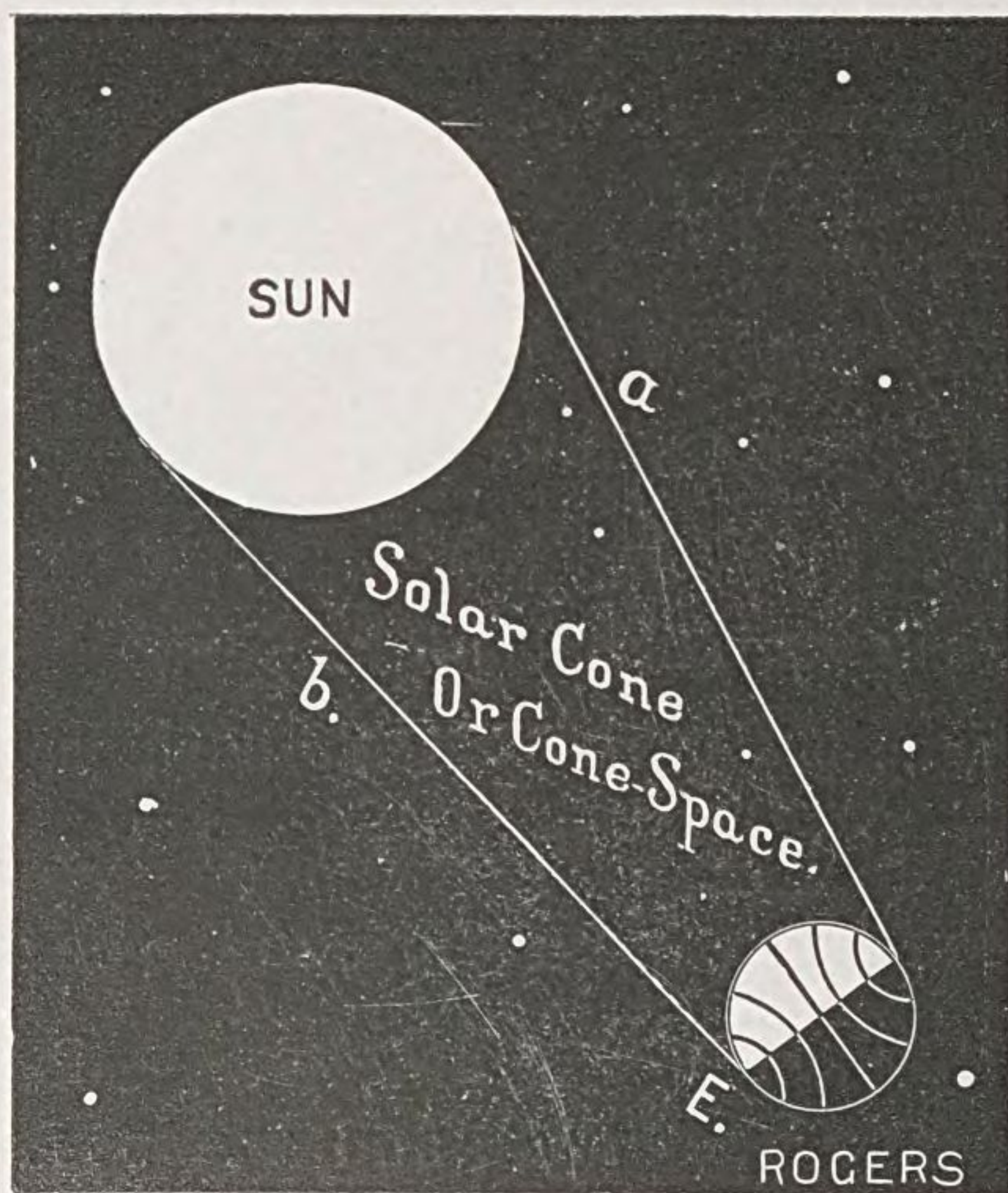


PLATE II.

SUN HEAT.

The action between the sun, and earth, is not wasteful, as hitherto claimed, but direct. The electrical process of heating and lighting the earth, is illustrated in Pl. II. If the lines *a. b.* be drawn from the sun to the earth, tangent to both, they will form

a tapering space, with the sun at the big end, and the earth at the small end, giving to the space the form of a truncated cone. Within this cone-shaped space, all the activities between the sun and earth take place.

The temperature of the universal space is variously estimated at from hundreds to millions of degrees below zero. Mr. Secehi said:—18,000,000 degrees below zero. No particle of heat can come from the sun to the earth through such intervening coldness. Neither the sun, nor the earth possesses resources adequate to the supply of heat for purposes of habitation, much less for resisting the effects of the surrounding cold of space.

The latter fact is most stupendous in its import. It settles at once, and forever, the question of an incandescent, ever-burning sun. The amount and kind of heat adequate to the protection of each star-world, never has been made account of. If every celestial body were a mass of coal, ignited to its center, the universal space would not be raised in temperature a single degree. Thus, our sun surrounded by the cold of space would quickly become frozen beyond all usefulness, if dependent upon its own internal resources for the power to counteract such coldness of space.

Sunheat and sunlight are due to the same causes and subject to the same laws. Each diminishes in the same ratio sunward.

The currents of the great electrical circuit in their round from the sun to the earth and back again to the sun, pass invisible and free through the 93,000,000 miles of cold and darkness, and their presence first becomes apparent here at the earth, in the gentle heat and light which they develop within our atmosphere, where the electrical sun-currents first meet *resistance* to their progress. Thus the heat and light which hitherto have been attributed to the sun itself, can be developed only in the lowest strata of our atmosphere.

SUN LIGHT.

Sunlight finds its development in the foregoing processes. The scientist has made no pretence of asserting what sunlight is, essentially. The most recent conception in regard to the sun is, that it is a vast and dazzling mass, composed of incandescent vapors, or gases.

In all pictorial illustrations of that body, it is shown with a bright face and with bright lines radiating outwards from it, Pl. III. These bright lines imply that actual heat and light, developed within and of itself, radiate in all directions and to all distances

into the cold and darkness of space. Hitherto science has recorded no other explanation, and, today, the scientist offers no other. Thus, science stands committed to the theory of an incandescent, dazzling sun.

THE SUN OF SCIENCE TODAY.



PLATE III.

That sunlight diminishes in the same rapid ratio sunward, as sunheat, is now abundantly demonstrable. At one and a half miles upwards the diffused light of the atmosphere is shown to be only from one-tenth to one-twentieth as great as at the surface of the earth.

At three and one half miles upwards, experiments made under the auspices of the distinguished spectroscopist Mr. Janssen, conclusively show that at that elevation the spectroscope no longer reveals the colors of the solar spectrum; only the yellow was seen *and that, too, without lines*. From that point upwards the sun's light continues to diminish in the same rapid ratio. Flammarion says:—"Outside of the atmospheric envelope of all spheres there is only the black of infinite space." The millions of star-suns and stars being surrounded by the black of infinite space, no light can leave their borders.

If the millions of star-suns could project light in all directions and to all distances, space would be illuminated and there would be no night throughout the universe.

Plate IV illustrates the sun of the new cosmology. It shows that body as surrounded by darkness and the stars. Plate IV therefore reveals some of the highest truths in cosmical science, viz: that something which is neither hot nor bright passes to, and fro, between the sun and earth, and between all the stars, and develops in the atmosphere of each, all needed heat and light; also that the stars are heated and lighted by

some agency, and through some process which science never has satisfactorily explained.

In view of the electrical theory of explanation of sun-heat, and sun-light, the philosophy of production

THE SUN OF THE FUTURE.

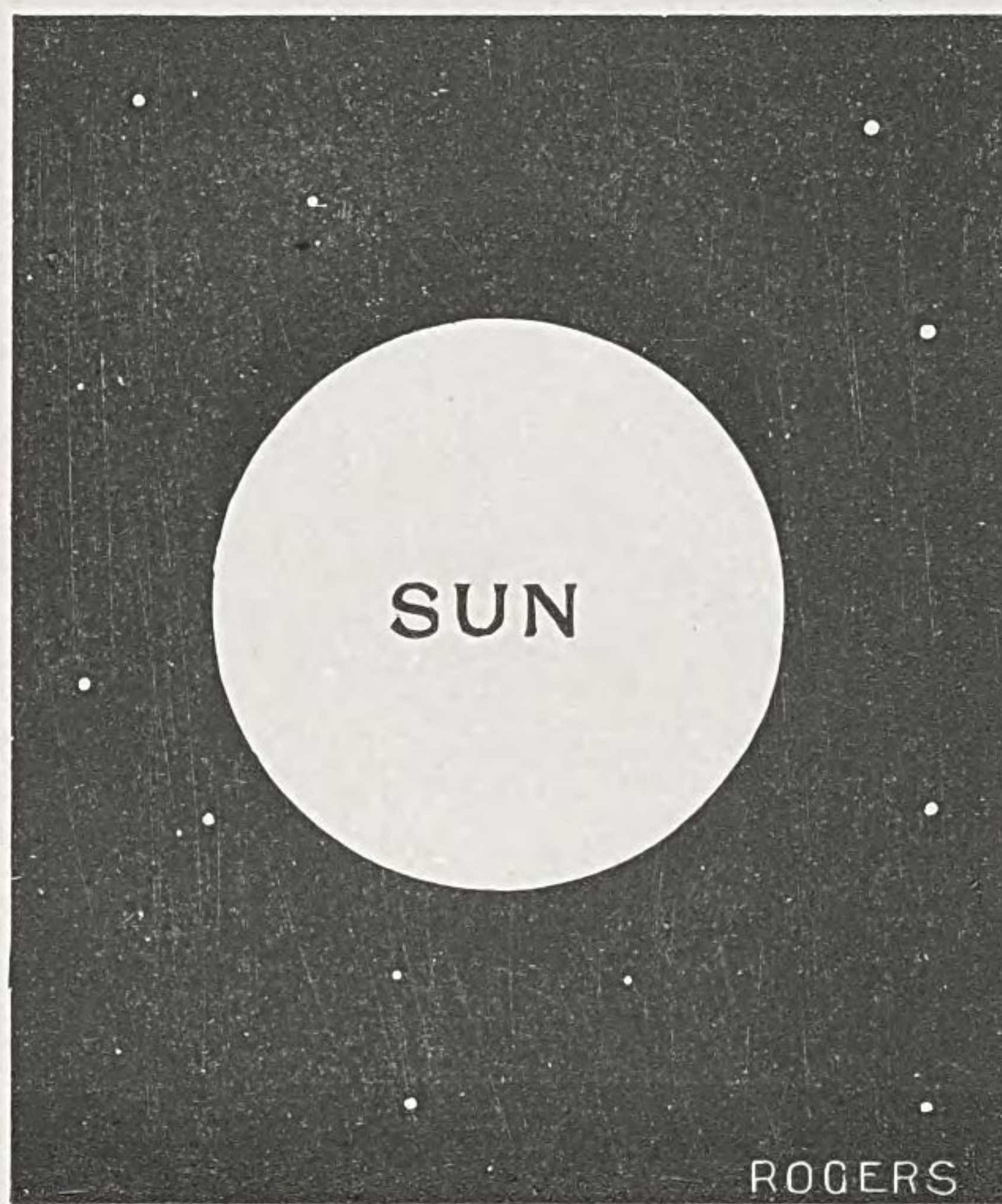


PLATE IV.

of those phenomena becomes simple and clear. Thus, the atmosphere performs the part of a vast carbon, *an aerial blanket carbon*, so to speak; and through the *resistance* which the atmospheric cushion offers to the passage of the currents of the *terra-solar* cir-

cuit, heat and light become developed everywhere at the surface of the earth, where alone they are needed. The sun therefore, may be dark, cool and habitable and still perform *its* part in heating and lighting the earth the same as now.

Since atmospheric heat and light are developed and incessantly renewed through the electrical activity ever in play at, or near, the surface of the earth, therefore, man need no longer be deceived by the apparent heat of the sun, nor blinded to the perception of great cosmical truths, by its glittering superficialities. It may not now be said that sunheat and sunlight *come*, but rather that they *are*.

THE SUN'S DAZZLE.

The most striking, and at the same time the most mysterious phenomenon of the sun, is its dazzle, yet this phenomenon is explainable upon the simplest principles of electrical and optical science. That delicate and powerful optical construction, the eye, performs a function never yet claimed for it. The electrical currents which come invisible from the sun, through the darkness of the universal space, strike the convex surface of the corneal lens, and become converged to the pupillary opening. In their passage through this lens they become increased in power.

On the passage of these rays through the crystalline lens they become greatly intensified. From thence they become diffused over the retina through the action of the concavo-convex vitreous body, or lens, with dazzling, blinding effects. Thus, this deceptive dazzle is not located at the sun, neither in "the black of infinite space," nor in our atmosphere, but only in the depths of the eye of the observer.

The brightness of the innumerable star-suns, billions and trillions of miles distant, cannot come as light, through the intervening darkness of space, but rather through the telescopic arrangement of the lenses of the eye, the electrical star-currents impress upon the retina the *sensation of brightness*.

Thus, while there is no object in the whole universe so striking in its appearance, and so familiar to the eye, as the sun, there is no object which has proved so deceptive, and so misleading to mankind. The lessons of the mountain-top, the aeronaut and, the black of infinite space, have been most strangely and persistently ignored, and disregarded.

There is perhaps no fact, or principle, in the whole domain of science more clear and decisive in determining what shall be the cosmology of the future, than

the darkness of infinite space. This darkness is incompatible with sunlight. *This fact is conclusive.*

MOON LIGHT.

The earth is lighted by the moon at night not through reflected sunlight, since currents of actual light cannot reach the moon through 93,000,000 miles of darkness; neither can the moon transmit actual light to the earth, through 240,000 miles of intervening darkness, but rather, electrical currents from the moon develop within our atmosphere the gentle moonlight.

COLD. (Atmospheric.)

It is a principle in electrical science that if a current of electricity when passing in one direction produces heat, when passing in the opposite direction it will develop cold. Thus heat and cold are alike transmutations of the electrical energy. They therefore are correlated, as really and truly as are the positive and negative conditions in electricity.

Cold as an entity is as real as heat. It has as distinctive operations, and as clearly defined laws. The powers of cold are unquestioned. The almost fabulous polar ice fields show its might, and the delicate frost-pictures upon our window panes, attest the action of a real force.

To compare it with heat, it is not less active. Heat expands, cold contracts. Heat drives the needle of the galvanometer in one direction, and cold drives it in the opposite direction. Cold is subject to the same laws of reflection. The absence of a thing i. e., *nothing*, cannot be reflected from a polished surface. Cold equally affects the senses. The marvelous power exercised by cold may not be attributed simply to the absence of heat, a mere negative condition. Thus, cold may no longer be regarded as practically a nonentity. The foregoing facts give to cold, equal status with heat, in the category of the so-called great physical forces.

THE ATMOSPHERE.

In the light of the electrical theory of force, the atmosphere reveals a constitution such as never has been claimed for it, and performs functions most momentous in their character.

The atmosphere everywhere surrounds the earth like a cushion. Its mass extends upwards three or four miles at its densest portion, and lessens in its depth and density progressively towards the poles.

The earth-magnet is filled to repletion with the electrical energy, and this electrical principle reaches out beyond its visible borders and constitutes its sur-

roundings, as is the case with other magnets. Electricity therefore largely, and perhaps mainly, constitutes the atmosphere. Science tells us that the atmosphere is a vast storage-reservoir of the magnetic, or electrical principle. Since electricity is substantial, and so largely constitutes the atmospheric mass, it is entitled to a corresponding recognition in the category of atmospheric constituents.

The electrical currents of the *terra-solar* circuit, when passing through vacuous space are almost as tenuous as spirit, and the slight *resistance* offered by the tenuous atmosphere develops therein the gentle sunheat and sunlight.

These very gentle diffused currents from the sun, when converged to a focus, or when meeting the resistance of a poor conductor, develop stupendous heating powers. Thus, but for the interposition of the atmospheric cushion, these currents would meet an amount and kind of resistance at the surface of the earth, which would develop a degree of heat that would unfit the earth for habitation.

The Sun and planets, and moons of planets become visible only through their electric-lighted atmospheres. Without an atmosphere thus electrically

lighted, no star-world would be visible, and the universe would be a chaos.

The power of the sun's currents, when not intercepted by the atmosphere, is seen in the arctic regions where the air is most tenuous. Here the face of the arctic explorer becomes the *object of resistance* to these currents. The arctic sun is always low on the sky, and its rays, consequently, are most oblique and powerless, yet they burn the unprotected skin, even in low temperatures.

Lieutenant Gilder says: "Nowhere on the earth is the traveler more annoyed by acute sunburn than in the polar regions. The heat of ordinary exercise compels him to throw back the hood of his fur coat, and, by exposing his head, his face not only becomes blistered, but his entire scalp is affected as severely as if a bucket of scalding water had been poured on him."

Lieutenant Schwatka tells us that his whole party, while on a sledge journey, were so severely burned that not only their faces but their entire heads were swollen to nearly twice their natural size.

The atmosphere, with its electrical mass as a constituent, with its new, and vast, and most vital func-

tions, and with the field of its operations so infinitely enlarged, now begins a new career, a new history.

FOURTH FORM OF MATTER.

Electricity may be considered the long and unsuccessfully sought for *Fourth Form of Matter*. The sole and indispensable requirement for that high distinction is, that this fourth form, shall be as much more tenuous than gaseous matter, as the gaseous is more tenuous than the liquid, or the liquid than the solid. Since electricity passes through solid walls, and through the solid earth, with as much freedom as wind through a grove of trees, no one will question that it meets that crucial test.

THE SUN'S HEAT AND LIGHT.

Since the so-called sunheat and sunlight are phenomena of the lowest strata of our atmosphere; the "*burning*," dazzling, sun of the past—that vast celestial "*fireball*," must soon give place to a sun filled with life, intelligence and beauty, like unto the earth.

The identity of constitution of star-suns and stars is no longer questionable, and this principle is now accepted by some of the highest authorities in the field of science. Since this conclusion can not be controverted, and since the sun is constituted like the earth, the demands of that body for indispensable

heat, and light, must be met in identically the same manner that the earth receives its supply, i. e., that of the awakening of the *sun's* atmosphere into heat, light, and life-giving effects, through the action of the return-currents of the circuits in action between itself and all of its satellites.

But one force exists, and, since the manifestations of that universal force are demonstrably electrical, the inference is both legitimate, and logical, that force in its lesser forms is electrical. This fact is now demonstrable.

Habitability is the highest attribute of a star-world, and man is the highest constituent of the earth-star. The sun in all its grandeur, sublimity, and power therefore cannot be rated lower in the great cosmical scale, than the diminutive earth, a million and a quarter times smaller. The sun therefore, and all stars are magnets, and inhabitable.

The estimate of the number of the stars, as advanced by distinguished astronomers, reaches nearly 100,000,000. Every star is like unto the earth, a dynamo-magnet, polarized in immensity, and every dynamo-magnet star *in motion*, develops electricity. Thus 100,000,000 dynamo-magnet stars *in motion*,

are capable of producing electrical energy sufficient for all demands for power for a universe.

“*Conservation*,” as a fundamental law of cosmical science, is now universally accepted, and, since the electrical energy developed through the action of the *mass* and the *velocities* of a universe of stars, can be neither lost, wasted, nor diverted, it must constitute the universal force.

THE HYPOTHETICAL BURNING SUN.

The foregoing cosmical facts and principles show the supposed *incandescent sun* in its true character, *i. e.*, as a gigantic illusion—an unmitigated fallacy. Thus, while the mere superficialities of that body—its apparent heat and brilliancy—have controlled the minds of men during all the past ages, the evidences against that hypothesis have been abundant, demonstrable, and wholly unquestioned.

THE UNITARY SCIENCE, THE SCIENCE OF THE FUTURE.

According to the opinions of the most distinguished authorities in the field of science—Aristotle, Humboldt, Agassiz, and a multitude of others, the distinguishing feature in the coming philosophy will be UNITY, and electrical science reveals all worlds as one, all

force as one, all life as one, the universe a UNIT. Since all physical phenomena are now found to be merged into a single principle of nature, the UNITARY SCIENCE becomes the science of the future, with its foundations securely resting upon the greatest of cosmical principles, i. e., ELECTRICITY, THE UNIVERSAL FORCE.

DUNKIRK, N. Y., 1898.

METIUS,

THE HOLLANDER, INVENTOR AND DISCOVERER.

BY

HENRY RAYMOND ROGERS, M. D.

DUNKIRK, N. Y.

Three hundred years ago there lived in Holland a man whose name was Metius, James Metius, a maker of lenses. This obscure lens-maker became an inventor, and a discoverer. His invention, and his discovery, never have been equaled.

Metius invented the telescope. Galileo, to whom this invention has been mainly attributed, tells us that he read a description of a telescope then recently invented by a Hollander, and, from this description, was enabled to construct his first instrument. A biographical dictionary of 1825, says: James Metius, a Hollander, was the inventor of telescopes with glasses.

The telescope reaches out into millions and billions, and trillions of miles of space, and reveals the presence of millions of stars in the celestial vault, yet the telescope with its marvelous powers, and its wonderful revelations, was not the highest achievement of Metius in this field. He constructed a lens from a piece of ice, and with this ice-lens he converged the rays of the sun to a focus, and set fire to combustibles.

Whence this Promethean fire? No person possessed of a competent faculty of thinking, and reasoning, will venture to assert that actual heat, and light, can come from the sun, to the earth, through 93,000,000 miles of cold and darkness of space, and pass through a lens of ice and ignite combustibles.

Metius could not then know the value and significance of his discovery, and this ice-lens phenomenon has come down through the centuries unexplained.

The lesson of this phenomenon now becomes of most stupendous import. It demonstrably teaches that something which is neither hot, nor bright, comes instantaneously, and incessantly, from the sun to the earth through 93,000,000 miles of cold, and darkness, and awakens our atmosphere to heat, light, and power. It further teaches, that the sun may be dark, cool, and habitable, and filled with life, intelligence and beauty, like unto the earth, and still heat and light its satellites the same as now. These facts are conclusive. They demonstrably and clearly show that the present theory of an incandescent, ever-consuming sun, is an absurdity—a very stigma upon science.

The sun does not consume. For millions of years it has not been known to lessen a single foot of its dimensions, or a single foot-pound in its energies. The exactness and uniformity of the mass, and the motions, of the sun, earth and moon, are shown in the fact that eclipses may be calculated with accuracy, backwards and forwards for centuries. The "fireball" sun of science, therefore may be safely relegated to the shades of the misty past. Peace be to its ashes!

Force is not a self-existent entity. On the scale of the universe, and of the laboratory, it acts, passes on, and must be incessantly renewed. Since "burning" cannot be an agency in the development of the energies of the sun, only one other source is conceivable, and that source is its motions.

Aristotle, the so-called Father of Science, asserted that "All force is due to motion—the impulse of the motions of the heavenly bodies." This prophetic speculation of the master has waited 2,300 years for its realization. To-day, it is fully and clearly demonstrable.

Motion, as a cosmical principle, must now take its just and true position in the great cosmical field. Thus, the highest principle in cosmical science which the mind of man may conceive of, is, the energy of celestial motion.

How the motions of the heavenly bodies may become transmuted into every form and manifestation of force, is no longer a mystery. The explanation is simple, very simple. The earth is a magnet with a magnetic axis and poles. The sun and all stars are magnets, polarized in immensity. The sun-magnet if isolated and motionless in space, would exert no power beyond its own boundaries. The sun, in motion, acting and retro-acting in concert with its celestial neighbors, becomes a stupendous dynamo-magnet with all the powers which its vast mass, and its inconceivable velocities imply.

It is a principle in electrical science that two bodies rotating near each other, disturb and set in motion electrical currents in both bodies. This principle applies on the scale of the universe. So far as electrical action is concerned, space and distance are virtually annihilated, and all the stars are as if standing side by side. The gentlest and most genial influences of the sun, reach out to Neptune, 2,800,000,000 miles distant, as effectually as to the earth, but 93,000,000 miles distant.

The earth with its 250,000,000,000 cubic miles of matter, rotates with the velocity of 25,000 miles per day. and moves in its orbital pathway at 1,500,000 miles per day. The sun, 1,250,000 times larger than the earth, rotates with the velocity of 100,000 miles per day. It is now demonstrably shown that these stupendous moving star-masses excite, and keep in action, electrical currents which instantaneously and incessantly pass to and fro, in great terra-solar circuits. Such electrical circuits are in action between the universe of star-worlds. Thus the mass, the motions, and the velocities, of the 100,000,000 star-worlds, account for an amount of energy adequate to every demand for a universe. In other words, electricity is the universal force.

The currents of terra-solar circuit pass instantaneously, invisible, and free, through the 93,000,000 miles of cold and darkness of space, and meet their first

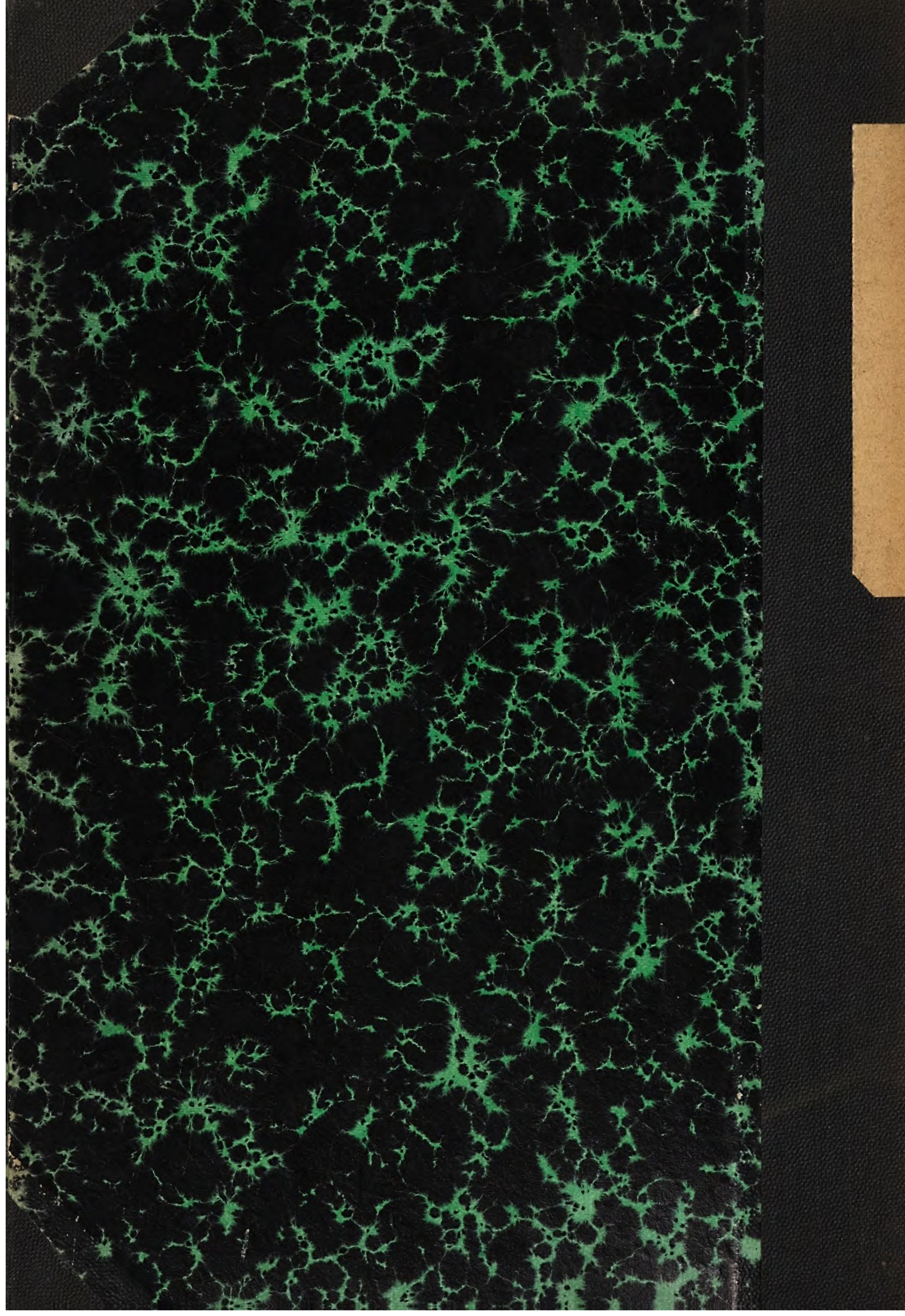
resistance in our atmosphere, and through such resistance, both the sun-currents, and the atmospheric mass, become excited to heat, light and power. In the action of these electrical sun-currents, the mysterious phenomenon of the ice-lens of Metius becomes explainable.

The part performed by Metius in the field of cosmical science now stands forth conspicuous, unique, unquestionable. His telescope added an infinity of space to the celestial area, and an infinity of bright worlds to its starry vault and his little ice-lens has produced results vastly more momentous. It has revealed the fact, that the sun and all the stars of the heavens may be dark, cool and habitable, and still shine brightly in the firmament—thus compelling a reconstruction of the philosophy of the universe, ab initio.

No greater invention, or discovery hath man made.

All honor to Metius, the Hollander, Inventor and Discoverer.

the



Rogers, Henry Raymond

The Universe, or the secrets of the sun and stars Read before the
Chautauqua Society of History and Natural Sciences, August 28, 1898. (31 S.
Electricity, the universal Force. (31 S.)

Buffalo 1898

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